

Mid-Span Power Hub 20-Port and 10-Port User's Guide





Electrical Hazard: Only qualified personnel should perform installation procedures.

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Enterasys Networks, Inc.
50 Minuteman Road
Andover, MA 01810

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Manufacturer's Name: **Enterasys Networks, Inc.**

Manufacturer's Address: **50 Minuteman Road
Andover, MA 01810
USA**

European Representative Address: **Enterasys Networks, Ltd.
Nexus House, Newbury Business Park
London Road, Newbury
Berkshire RG14 2PZ, England**

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EN 55024
EC Directive 73/23/EEC
EN 60950**

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About This Guide

Purpose

This guide provides information and procedures on hardware installation, setup, configuration, and management of the Enterasys Networks 20-port and 10-port Mid-Span Power Hubs.

Who Should Use This Guide



Electrical Hazard: Only qualified personnel should perform the installation procedures described in this guide.

This guide is intended for administrative and technical personnel responsible for installing and managing Enterasys Networks products.

To use this guide effectively, you should have a working knowledge of Local Area Networking (LAN) concepts and wireless LAN access infrastructures. In addition, you should have:

- A working knowledge of basic electronics and mechanical assembly.
- An understanding of local operating and troubleshooting procedures.
- An understanding of related local building codes.

Document Conventions

Throughout this guide the following symbols are used to call attention to important information.



Note: Calls the reader's attention to any item of information that may be of special importance.



Caution: Contains information essential to avoid damage to the equipment.



Electrical Hazard: Warns against an action that could result in the presence of an electrical hazard.

Getting Help

For additional support related to the Mid-Span Power Hub or this document, contact Enterasys Networks using one of the following methods:

| | |
|----------------|--|
| World Wide Web | http://www.enterasys.com/support |
| Phone | 603-332-9400 1-800-872-8440 (toll-free in U.S. and Canada) For the Enterasys Networks Support toll-free number in your country: http://www.enterasys.com/support/gtac-all.html |
| Internet mail | support@enterasys.com To expedite your message, please type [eth] in the subject line. |

To send comments or suggestions concerning this document to the Technical Writing Department:
techwriting@enterasys.com

To expedite your message, please type **[techwriting]** in the subject line, and include the document Part Number in the email message.

Before contacting Enterasys Networks for technical support, have the following information ready:

- Your Enterasys Networks service contract number
- A description of the failure
- A description of any action(s) already taken to resolve the problem (e.g., changing mode switches, rebooting the unit, etc.)
- The serial and revision numbers of all involved Enterasys Networks products in the network
- A description of your network environment (layout, cable type, etc.)
- Network load and frame size at the time of trouble (if known)
- The device history (i.e., have you returned the device before, is this a recurring problem, etc.)
- Any previous Return Material Authorization (RMA) numbers

Introduction

Functions and Features

The BL-89220ENT, BL-89420ENT, BL-89520ENT, BL-89620ENT, and BL-89720ENT 20-port Mid-Span Power Hub and the BL-89210ENT and BL-89710ENT 10-port Mid-Span Power Hub support applications in which AC power is difficult to access, such as VoIP phones, wireless LAN access points or Internet security cameras.

The Enterasys 20-port and 10-port Mid-Span Power Hubs act as “patch panels” and add ~48 VDC to unused (non-data) wires in standard Category 5, 5e, or 6 Ethernet cable. The power unit delivers both data and power over a single standard Ethernet cable.

Main features of the 20-port and 10-port Mid-Span Power Hubs include:

- Fully hot-swappable modules
- Remote power feeding; powered devices receive power over the Ethernet cable
- Centralized power distribution; one powered device can be connected to a single in-line unit
- IEEE 802.3af standard powering scheme
- Acts as a normal patch panel and places ~48 VDC on unused Ethernet pins
- Total power available: 15.6W per port per IEEE specification
- Automatic power-control circuitry to detect a powered device before providing power
- Double-fused power surge protection

Port Indicators

Each port has its own LEDs which display the following:

- Detect (green)
- Fuse blown (yellow)
- Power from chassis (green)
- Power forwarding (green)

For information on Troubleshooting, refer to [Table 3-1](#) on page 3-1.

Installation and Connection



Electrical Hazard: Only qualified personnel should install or service this unit.

Verifying the Kit

Unpack the unit and verify that you have all of the following items (See [Figure 2-1](#) and [Figure 2-2](#) on page 2-2):

- Enterasys' 20-port or 10-port Mid-Span Power Hub
- Power Cord
- User's Guide

Kit Contents

Figure 2-1 BL-89420ENT, BL-89520ENT, BL-89620ENT, or BL-89720ENT 20-Port Mid-Span Power Hub

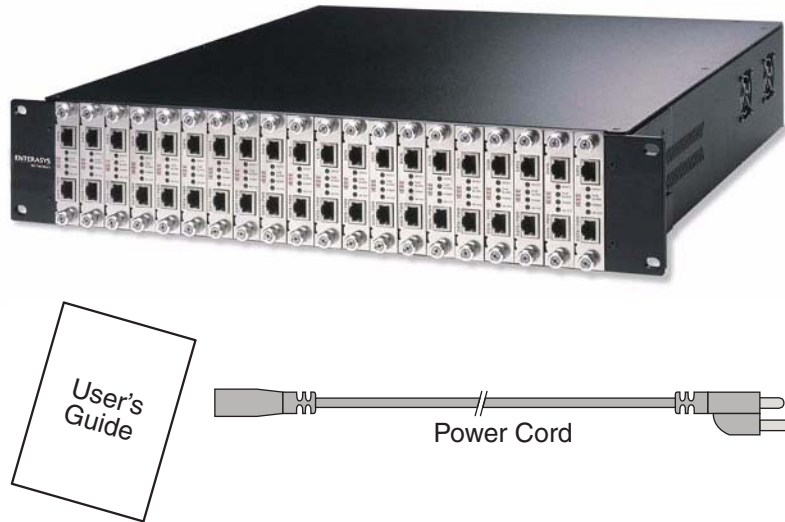
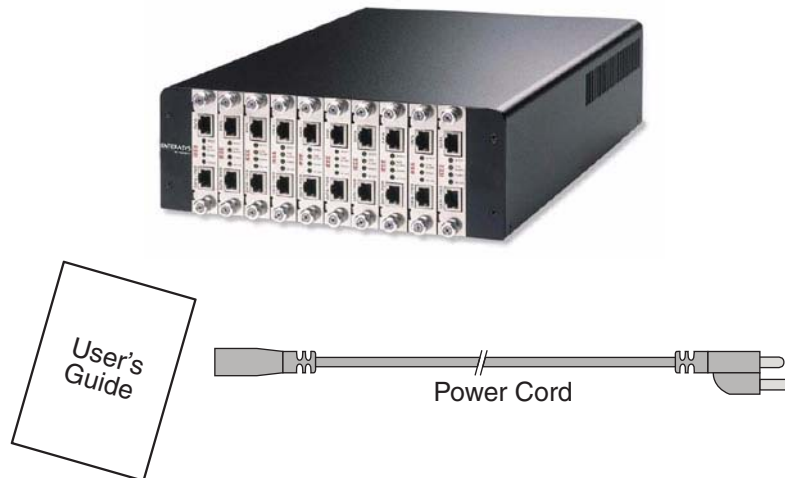


Figure 2-2 BL-89710ENT 10-Port Mid-Span Power Hub



The 20-port Mid-Span Power Hub may be placed on a shelf or mounted in a standard 19-inch rack.

The 10-port Mid-Span Power Hub may be placed on a shelf or mounted in a standard 19-inch rack using the BL-89210-RMENT rack mount kit (optional).

Technical Considerations

Before you mount the unit to a fixed location, consider the following:

- Determine optimal placement.
- Collect and document network information as required.
- Ensure the cable length from the Ethernet network source to the powered device does not exceed 100 meters.



Note: The unit is not a repeater and does not amplify the Ethernet data signal.



Caution: Observe the following requirements when mounting the Enterasys 20-port or 10-port Mid-span Power Hub:

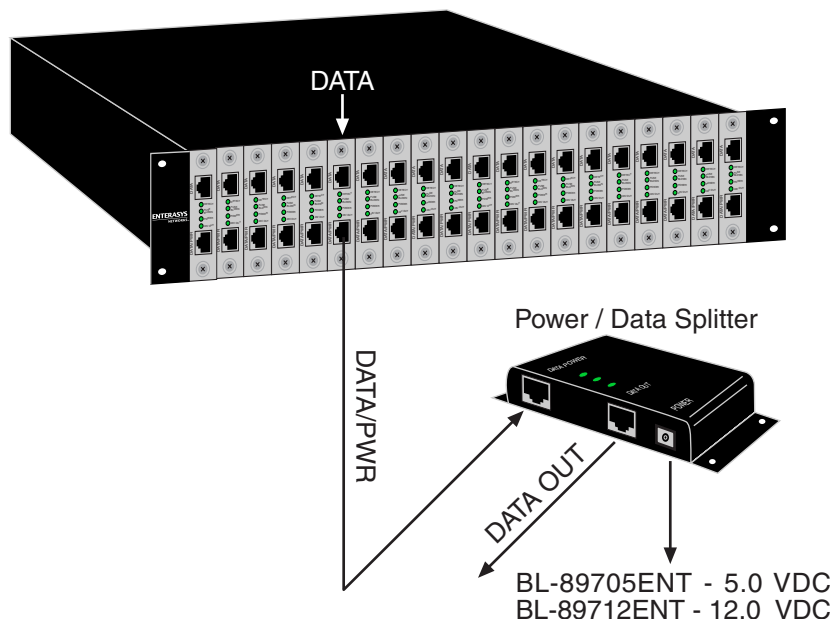
- This unit is intended for installation in a wiring closet.
- Connect the unit to a grounding type AC outlet (100–240 VAC), using the standard power cord shipped with the unit, or a user-supplied power supply.
- Allow for easy access to disconnect the unit from the AC outlet, if necessary.
- Do not cover the unit or block the airflow with any other objects. Keep the unit away from excessive heat, humidity, vibration, and dust.
- Ensure that installation conforms to local regulations.

Using a Splitter with the 20-Port and 10-Port Mid-Span Power Hubs

Some products require a BL-89705ENT or BL-89712ENT splitter (sold separately) that splits power and data into separate cables, and converts the ~48 VDC into 5.0 VDC or 12.0 VDC for input power. To ensure compliance with class A requirements, use category 5, 5e, or 6 shielded twisted pair straight-through cables.

Figure 2-3 shows a typical configuration for the Enterasys 20-port Mid-Span Power Hub operating with a splitter.

Figure 2-3 BL-89420ENT, BL-89520ENT, BL-89620ENT, or BL-89720ENT Power Hub with Splitter



Powering Up

Simply plug one end of the power cord into the unit, and the other end into a grounded AC power source. Units are typically connected to a power strip or other power outlet that may be cycled on and off. An uninterruptible power supply may also be used.

Check to make sure each module installed displays a green Power LED (see [Figure 2-4](#)). Verify that any module that does not display a green LED is properly seated in the chassis backplane.

Power Sensing Considerations

The Mid-Span IEEE 802.3af PoE modules look for a 25K resistance in the sense phase, but can have trouble properly sensing the class resistor value when the powered device has any ground connection. This is especially true when some ground currents may exist such as from a motor or a fluorescent ballast. If the mount results even in a large capacitance to ground, it may cause the mid-span module to reject the load as a short.

For best consistent results regardless of local electrical conditions, the physical mounting of the PoE clients should be electrically insulated from ground. The use of an insulated bracket and nylon washers/screws may be necessary.

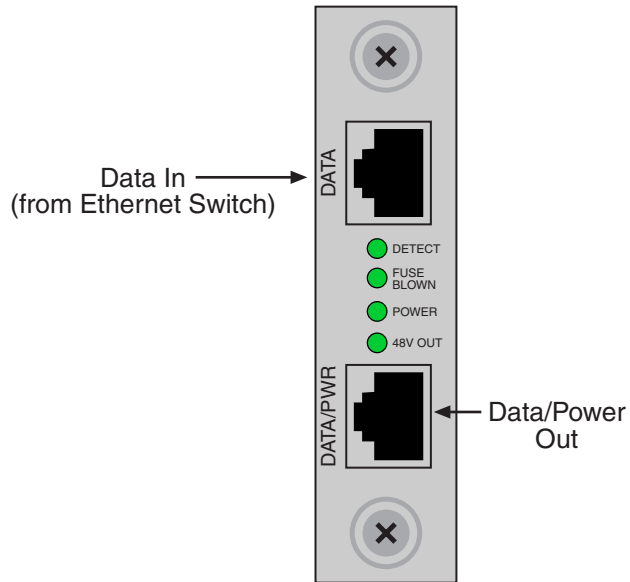
For example, make sure that

- the PoE client is not mounted with a metal bracket and screws to the metal drop ceiling structural grid, or
- the fluorescent light fixtures are not connected to the junction box through flexible metal conduit.

If problems exist, refer to the troubleshooting checklist in [Chapter 3, Troubleshooting](#).

If you require assistance, contact Enterasys Networks using one of the methods described in [“Getting Help”](#) on page x.

**Figure 2-4 Individual Module for the 20- and 10-Port Chassis
(BL-89400ENT, BL-89500ENT, BL-89600ENT, and BL-89700ENT)**



Troubleshooting

Refer to [Table 3-1](#) for a checklist of problems and recommended actions to resolve the problem. If additional support is needed, refer to “[Getting Help](#)” on page x.

Table 3-1 Troubleshooting Checklist

| Problem | Recommended Action |
|--|---|
| Unit is plugged into the Enterasys Mid-Span Power Hub, but main power indicator is “off.” | <p>Verify the use of a good AC cable with a good ground connection.</p> <p>Verify that the AC is “hot” and that voltage is from 100 VAC to 264 (50 Hz to 60 Hz).</p> <p>For the 20-port or 10-port Mid-Span Power Hub, if the internal fan is working, there may be an internal circuitry fault or an internal voltage is out of specification. If the fan is not working, there may be an internal power supply fault.</p> |
| Unit is plugged in and running, but the 20-port or 10-port Mid-Span Power Hub fans are not working. | <p>Verify that all fan openings are clear.</p> <p>Verify that the metal case is not damaged.</p> <p>Verify that there are no loose parts inside the Mid-Span Power Hub.</p> <p>Product Considerations: BL-89500ENT, BL-89400ENT, BL-89700ENT Series If needed, check and replace fuse F1, with a 2.0 A rated fuse</p> <p>BL-89600ENT Series If needed, check and replace fuse F3, with a 2.0 A rated fuse</p> |
| Unit is plugged into the 20-port or 10-port Mid-Span Power Hub and running, but fails when a PoE client is installed. No power is supplied to PoE client. | <p>Verify that the unit (BL-89500ENT, BL-89400ENT, BL-89700ENT or BL-89600ENT) is electrically insulated from ground (ground-isolated).</p> <p>Using an insulated bracket and nylon washers/ screws may be necessary.</p> |

Table 3-1 Troubleshooting Checklist (continued)

| Problem | Recommended Action |
|---|---|
| The Mid-Span Power Hub operates but one of the powered devices does not work. | <p>Verify that you are using a standard UTP Cat. 5 cable, including all eight wires (four pairs.) Try to move the same load into a different port on the same hub. If it works, there is probably a faulty port or bad RJ45 port connection. If possible, try to connect the load device into a different hub.</p> <p>Try using a different Ethernet cable. If it works, there is probably a faulty connection over the long cable, or a bad RJ45 connection.</p> <p>Product Consideration: BL-89500ENT, BL-89400ENT, BL-89700ENT Series If the “fuse blown” light is on or flashing, replace fuse F2 with a 0.5 A rated fuse.</p> <p>BL-89600ENT Series If the “fuse blown” light is on or flashing, replace fuse F4 with a 0.5 A rated fuse.</p> |
| The Mid-Span Power Hub operates and the load device works, but there is no data link. | <p>Verify that the indicator for the port is “on.” Verify that the Mid-Span Power Hub is connected to the Ethernet network with a good connection.</p> <p>Verify that the Ethernet cable is Category 5 or greater, and is less than 100 meters in length from the Ethernet source to the load.</p> <p>Try to connect a different device over the same port. If it works and a link is established, there is probably a faulty data link in the load.</p> <p>Try to reconnect the load into a different output port (remember to move the input port accordingly). If it works, there is probably a faulty output or input port in the Mid-Span Power Hub or a bad RJ45 connection.</p> |
| The Mid-Span Power Hub operates but one of the ports is powering a load without turning the “Power” indicator on. | Move the load into a different output port. If the indicator turns “on,” there is a fault in the previous output port. |



Hardware Specifications

This appendix lists 20-port and 10-port Mid-Span Power Hub hardware and electrical specifications.

Regulatory Compliance Standards

This equipment meets the following safety and electromagnetic compatibility (EMC) requirements:

| | |
|-------------------------------------|--|
| Safety | UL 60950, CSA C22.2 No. 60950, 73/23/EEC, EN 60950, IEC 60950 |
| Electromagnetic Compatibility (EMC) | 47 CFR Parts 2 and 15, CSA C108.8, 89/336/EEC, EN 55022, EN 61000-3-2, EN 61000-3-3, EN 55024, AS/NZS CISPR 22, VCCI V-3 |

Product Standards

The equipment meets the following product standards:

| | |
|-----------|--------------|
| Standards | IEEE 802.3af |
|-----------|--------------|

20-Port Model BL-89420ENT, BL-89520ENT, BL-89620ENT, or BL-89720ENT

- 20 Female RJ45 Data input ports
- Shielded jacks for Category 5 or greater UTP (two pair wire) or 100-ohm STP (two pair wire)
- Distance: Up to 100 meters, standard Ethernet distance
- 20 Female RJ45 Data+Power on Ethernet (PoE=Power over Ethernet) output ports

10-Port Model BL-89710ENT

- 10 Female RJ45 Data input ports
- Shielded jacks for Category 5 or greater UTP (two pair wire) or 100-ohm STP (two pair wire)
- Distance: Up to 100 meters, standard Ethernet distance
- 10 Female RJ45 Data+Power on Ethernet (PoE=Power over Ethernet) output ports

20-Port Model Physical/Mechanical Specifications

Table A-1 provides physical and mechanical specifications for the 20-port Mid-Span Power Hub.

Table A-1 20-Port Model Physical and Mechanical Specifications

| Item | Specification |
|--------------|--|
| Chassis Type | 48.26 cm (19.0 in.) rackmount with 20 modules |
| Chassis Size | 48.26 cm W x 45.72 cm D x 8.89 cm H (19.0 in. W x 18.0 in. D x 3.5 in. H) |
| Module Type | Removable, hot swappable |
| Weight | 9.0 kg (20.0 lbs) |

10-Port Model Physical/Mechanical Specifications

Table A-2 provides physical and mechanical specifications for the 10-port Mid-Span Power Hub.

Table A-2 10-Port Model Physical and Mechanical Specifications

| Item | Specification |
|--------------|--|
| Chassis Type | 25.4 cm (10.0 in.) with 10 modules |
| Chassis Size | 25.4 cm W x 37.47 cm D x 8.89 cm H (10.0 in. W x 14.75 in. D x 3.5 in. H) |
| Module Type | Removable, hot swappable |
| Weight | 3.6 kg (8.0 lbs) |

LED Indicators/Module

Table A-3 LED States and Their Definitions

| LED Color | State |
|-----------|-----------------------------|
| Green | Detect |
| Yellow | Fuse Blown |
| Green | Power from Chassis |
| Green | Power Forwarding (48 V Out) |

Physical/Environmental Specifications

Table A-4 Physical and Environmental Specifications

| Item | Specification |
|-----------------------|-------------------------------|
| Operating Temperature | 0° to 40° C (32° to 105° F) |
| Storage Temperature | -10° to 60° C (14° to 140° F) |
| Relative Humidity | 10% to 90% non-condensing |
| Operating Altitude | -1,000 to 10,000 feet |

Electrical Specifications

AC Power Input

| | |
|-------------------|------------------------------------|
| Voltage | 90–264 V Autoranging (46 Hz–63 Hz) |
| Connector | 3-pin with Ground |
| Chassis Grounding | Yes |
| Power Supply | Single |

DC Port Power Output

| | |
|--------------------------------|--|
| Power Enabling | IEEE 802.3af |
| Power Pins | Unused Pairs, Pins 4,5(+), 7,8,-) |
| Maximum Power/Port | 15.6 W |
| Maximum Power-all Ports Active | 20 Port: 20 x 15.6 W=312 W 10 Port: 10 x 15.6 W=156 W |
| Port to Port Isolation | 1000 Vrms |
| Overload Protection | If current reaches 400–450mA for 300–400 milliseconds, then the port shuts down. |



Data/Power Splitter Specifications

This appendix lists Data/Power Splitter hardware and electrical specifications.

Data/Power Splitter Hardware and Electrical Specifications

Regulatory Compliance Standards

This equipment meets the following safety and electromagnetic compatibility (EMC) requirements:

| | |
|-------------------------------------|--|
| Safety | UL 60950, CSA C22.2 No. 60950, 73/23/EEC, EN 60950, IEC 60950 |
| Electromagnetic Compatability (EMC) | 47 CFR Parts 2 and 15, CSA C108.8, 89/336/EEC, EN 55022, EN 61000-3-2, EN 61000-3-3, EN 55024, AS/NZS CISPR 22, VCCI V-3 |

Product Standards

The equipment meets the following product standards:

| | |
|-----------|--------------|
| Standards | IEEE 802.3af |
|-----------|--------------|

Physical/Mechanical Specifications

Table B-1 Physical/Mechanical Specifications

| Item | Specification |
|--------------|--|
| Chassis Type | Data/Power Splitter |
| Chassis Size | 9.52 cm W x 6.98 cm D x 2.54 cm H (3.75 in. W x 2.75 in. D x 1.0 in. H) |
| Weight | 0.25 kg (9 oz) |

Electrical Specifications

Table B-2 Electrical Specifications

| Item | Specification |
|-------------|----------------------|
| BL-89705ENT | 5 V @ 2.0 A |
| BL-89712ENT | 12 V @ 1.0 A |

Physical/Environmental Specifications

Table B-3 Physical and Environmental Specifications

| Item | Specification |
|-----------------------|-------------------------------|
| Operating Temperature | -20° to 60° C (32° to 105° F) |
| Storage Temperature | -40° to +80° C |
| Relative Humidity | 93% non-condensing |